

SEQUENCE LISTING

<110> University of Rochester
Gigliotti, Francis
Wright, Terry W.
Haidaris, Constantine G.
Simpson Haidaris, Patricia J.
Wells, Jesse

<120> POLYPEPTIDES AND IMMUNOGENIC CONJUGATES CAPABLE OF
INDUCING ANTIBODIES AGAINST PATHOGENS, AND USES THEREOF

<130> 176/61731

<140> PCT/US2004/043959
<141> 2004-12-31

<150> 60/533,788
<151> 2003-12-31

<160> 67

<170> PatentIn Ver. 2.1

<210> 1
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (1)
<223> Xaa at position 1 is Arg, Lys, or Gln

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (5)
<223> Xaa at position 5 is optional and can be Pro

<220>

<221> PEPTIDE
 <222> (6)
 <223> Xaa at position 6 is Lys, Gln, or Arg

<220>
 <221> PEPTIDE
 <222> (8)
 <223> Xaa at position 8 is any amino acid

<400> 1
 Xaa Pro Xaa Pro Xaa Xaa Pro Xaa Pro
 1 5

<210> 2
 <211> 543
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: partial
 nucleotide sequence of the proline rich domain of
 mouse P. carinii kexin

<400> 2
 aaaccaacac ctcaaccaac acctcagcca acatctgagc caacatctga gccaacatct 60
 gagccaacat ctgaaccaac acctcaacca gcaccacctc aaccagcacc acctcaacca 120
 gcacctcaac cagcacctca accagcacct caaccagcac cacctcaacc agcaccacct 180
 caaccagtag cacctcaacc agtaccacct caaccaatgc catctagacc agcaccacct 240
 aaaccaacac ctcaaccaac atctgagcca gcacctcaac caacatctga gtcaacatct 300
 gaaccaacac ctcgaccacc acctcagcca acatctgagc caacatctga accaacatct 360
 gaaccaacat ctgaaccatc acctcaacca acacctcaac cagtacctca accagcacct 420
 caaccagcac cacctaaacc ggcacctaaa ccaacaccac ctaaaccggc acctaaacca 480
 acaccaccta aaccagcgcc taaaccagca ccatctaaat catcatctaa accaacatct 540
 aca 543

<210> 3
 <211> 181
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: deduced amino
 acid sequence of the proline rich domain of mouse
 P. carinii kexin

<400> 3

Lys Pro Thr Pro Gln Pro Thr Pro Gln Pro Thr Ser Glu Pro Thr Ser
 1 5 10 15

Glu Pro Thr Ser Glu Pro Thr Ser Glu Pro Thr Pro Gln Pro Ala Pro
 20 25 30

Pro Gln Pro Ala Pro Pro Gln Pro Ala Pro Gln Pro Ala Pro Gln Pro
 35 40 45

Ala Pro Gln Pro Ala Pro Pro Gln Pro Ala Pro Pro Gln Pro Val Pro
 50 55 60

Pro Gln Pro Val Pro Pro Gln Pro Met Pro Ser Arg Pro Ala Pro Pro
 65 70 75 80

Lys Pro Thr Pro Gln Pro Thr Ser Glu Pro Ala Pro Gln Pro Thr Ser
 85 90 95

Glu Ser Thr Ser Glu Pro Thr Pro Arg Pro Pro Pro Gln Pro Thr Ser
 100 105 110

Glu Pro Thr Ser Glu Pro Thr Ser Glu Pro Thr Ser Glu Pro Ser Pro
 115 120 125

Gln Pro Thr Pro Gln Pro Val Pro Gln Pro Ala Pro Gln Pro Ala Pro
 130 135 140

Pro Lys Pro Ala Pro Lys Pro Thr Pro Pro Lys Pro Ala Pro Lys Pro
 145 150 155 160

Thr Pro Pro Lys Pro Ala Pro Lys Pro Ala Pro Ser Lys Ser Ser Ser
 165 170 175

Lys Pro Thr Ser Thr
 180

<210> 4
 <211> 967
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: nucleotide
 sequence of *P. carinii* cDNA clone A12

<400> 4
 accaatatat ccgaaccagc actgcctgat aaggatcctc aacctacatc ttcacctcag 60

```

ccaaaacctc ggccaagacc tcgacctcaa cctcaacctc atccacatcc aaaacctcag 120
cctcagccga cgccagaacc tcagcctcag ccggcgccag aacctcgacc tcagccgacg 180
tcaaaacctc gacctcagcc aacgtcaaaa cctcgacctc agccgacgcc agaacctcga 240
cctctgccgg tgccaggacc tggacctctg ccggtgccag gacctcgacc tcaacctcaa 300
cctcaacctc aacctcagcc tcaacctcaa cctcagcctc aacctcaacc tcagcctcag 360
cctcagcctc agcctcagcc tcaacctcag ccgaagcctc aaccaccatc tcagtcaaca 420
tcagaatcag catcgcaatc caaaccaaaa ccaacaacac aaacaaaacc gtcaccgaga 480
ccacacccaa agccggtgcc aaaaccatca tcgatagaca caggaccatc aaaatcggat 540
tcaagcttca tttttacagt aacaaaaaca ataacaaga tatcagaaac agaaaaacca 600
tctacaaaac catctgtgaa accaacctct acaaagacaa catcaaaacc atctacaaaa 660
ccatctacaa aaccatctgt aaaaccagcc tctacaaaga caacatcaga atcagaaaaa 720
ccaacattgg aagaagticc agaaactaaa gggaatggtg taagagtaat aggatttgag 780
gggttacaat tattatcaat gattgttgca ataataattg ggatatggat aatgtaaatt 840
taattagaag tcattggcta ttaaattaat atatagtaat ttgtaataat tagataaata 900
gacaggggat ctagaaatca atgtgtgatt aaataaatat aaaaatctaa aaaaaaaaaa 960
aaaaaaa

```

<210> 5

<211> 278

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: amino acid
sequence of *P. carinii* cDNA clone A12

<400> 5

```

Thr Asn Ile Ser Glu Pro Ala Leu Pro Asp Lys Asp Pro Gln Pro Thr
 1             5             10             15

```

```

Ser Ser Pro Gln Pro Lys Pro Arg Pro Arg Pro Arg Pro Gln Pro Gln
          20             25             30

```

```

Pro His Pro His Pro Lys Pro Gln Pro Gln Pro Thr Pro Glu Pro Gln
      35             40             45

```

```

Pro Gln Pro Ala Pro Glu Pro Arg Pro Gln Pro Thr Ser Lys Pro Arg
      50             55             60

```

```

Pro Gln Pro Thr Ser Lys Pro Arg Pro Gln Pro Thr Pro Glu Pro Arg
      65             70             75             80

```

```

Pro Leu Pro Val Pro Gly Pro Gly Pro Leu Pro Val Pro Gly Pro Arg
          85             90             95

```

```

Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln
      100             105             110

```

Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln
 115 120 125

Pro Gln Pro Lys Pro Gln Pro Pro Ser Gln Ser Thr Ser Glu Ser Ala
 130 135 140

Ser Gln Ser Lys Pro Lys Pro Thr Thr Gln Thr Lys Pro Ser Pro Arg
 145 150 155 160

Pro His Pro Lys Pro Val Pro Lys Pro Ser Ser Ile Asp Thr Gly Pro
 165 170 175

Ser Lys Ser Asp Ser Ser Phe Ile Phe Thr Val Thr Lys Thr Ile Thr
 180 185 190

Lys Ile Ser Glu Thr Glu Lys Pro Ser Thr Lys Pro Ser Val Lys Pro
 195 200 205

Thr Ser Thr Lys Thr Thr Ser Lys Pro Ser Thr Lys Pro Ser Thr Lys
 210 215 220

Pro Ser Val Lys Pro Ala Ser Thr Lys Thr Thr Ser Glu Ser Glu Lys
 225 230 235 240

Pro Thr Leu Glu Glu Val Pro Glu Thr Lys Gly Asn Gly Val Arg Val
 245 250 255

Ile Gly Phe Glu Gly Leu Gln Leu Leu Ser Met Ile Val Ala Ile Ile
 260 265 270

Ile Gly Ile Trp Ile Met
 275

<210> 6

<211> 192

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: partial
 deduced amino acid sequence of *S. pneumoniae* URSP2
 PspA

<400> 6

Glu Lys Glu Leu Lys Glu Ile Asp Glu Ser Asp Ser Glu Asp Tyr Ile
 1 5 10 15

Lys Glu Gly Leu Arg Ala Pro Leu Gln Ser Lys Leu Asp Ala Lys Lys
 20 25 30
 Ala Lys Leu Ser Lys Leu Glu Glu Leu Ser Asp Lys Ile Asp Glu Leu
 35 40 45
 Asp Ala Glu Ile Ala Lys Leu Glu Lys Asp Val Glu Asp Phe Lys Asn
 50 55 60
 Ser Asp Gly Glu Gln Ala Glu Gln Tyr Leu Val Ala Ala Lys Lys Asp
 65 70 75 80
 Leu Asp Ala Lys Lys Ala Glu Leu Glu Asn Thr Glu Ala Asp Leu Lys
 85 90 95
 Lys Ala Val Asp Glu Pro Glu Thr Pro Ala Pro Ala Pro Lys Pro Ala
 100 105 110
 Pro Ala Pro Ala Pro Thr Pro Glu Ala Pro Ala Pro Ala Pro Lys Pro
 115 120 125
 Ala Pro Ala Pro Lys Pro Ala Pro Ala Pro Ala Pro Thr Pro Glu Ala
 130 135 140
 Pro Ala Pro Ala Pro Lys Pro Ala Pro Ala Pro Lys Pro Ala Pro Ala
 145 150 155 160
 Pro Ala Pro Thr Pro Glu Ala Pro Ala Pro Ala Pro Lys Pro Ala Pro
 165 170 175
 Ala Pro Arg Pro Ala Pro Ala Pro Lys Pro Ala Pro Asp Pro Lys Pro
 180 185 190

<210> 7

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 7
Arg Pro Xaa Pro Pro Lys Pro Xaa Pro
1 5

<210> 8
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 8
Arg Pro Xaa Pro Pro Gln Pro Xaa Pro
1 5

<210> 9
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 9
Arg Pro Xaa Pro Pro Arg Pro Xaa Pro
1 5

<210> 10
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 10
Lys Pro Xaa Pro Pro Lys Pro Xaa Pro
1 5

<210> 11
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 11
Lys Pro Xaa Pro Pro Gln Pro Xaa Pro
1 5

<210> 12
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 12
Lys Pro Xaa Pro Pro Arg Pro Xaa Pro
1 5

<210> 13
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)

<223> Xaa at position 8 is any amino acid

<400> 13

Gln Pro Xaa Pro Pro Lys Pro Xaa Pro
1 5

<210> 14

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (8)

<223> Xaa at position 8 is any amino acid

<400> 14

Gln Pro Xaa Pro Pro Gln Pro Xaa Pro
1 5

<210> 15

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (8)

<223> Xaa at position 8 is any amino acid

<400> 15

Gln Pro Xaa Pro Pro Arg Pro Xaa Pro

1

5

<210> 16

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (7)

<223> Xaa at position 7 is any amino acid

<400> 16

Arg Pro Xaa Pro Lys Pro Xaa Pro

1

5

<210> 17

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (7)

<223> Xaa at position 7 is any amino acid

<400> 17

Arg Pro Xaa Pro Gln Pro Xaa Pro

1

5

<210> 18

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (7)

<223> Xaa at position 7 is any amino acid

<400> 18

Arg Pro Xaa Pro Arg Pro Xaa Pro

1

5

<210> 19

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (7)

<223> Xaa at position 7 is any amino acid

<400> 19

Lys Pro Xaa Pro Lys Pro Xaa Pro

1

5

<210> 20
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 20
Lys Pro Xaa Pro Gln Pro Xaa Pro
1 5

<210> 21
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 21
Lys Pro Xaa Pro Arg Pro Xaa Pro
1 5

<210> 22

<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 22
Gln Pro Xaa Pro Lys Pro Xaa Pro
1 5

<210> 23
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 23
Gln Pro Xaa Pro Gln Pro Xaa Pro
1 5

<210> 24
<211> 8
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

<220>

<221> PEPTIDE

<222> (3)

<223> Xaa at position 3 is any amino acid

<220>

<221> PEPTIDE

<222> (7)

<223> Xaa at position 7 is any amino acid

<400> 24

Gln Pro Xaa Pro Arg Pro Xaa Pro
1 5

<210> 25

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Kexin Epitope
S

<400> 25

aaaccggcac ctaaaccaac accacctaata ccagcgccta aaccagcacc aa 52

<210> 26

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Kexin Epitope
AS

<400> 26

tggtgctggt ttaggcgctg gtttaggtgg tgttggttta ggtgccggtt ta 52

<210> 27

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A39 Epitope2
S

<400> 27

agaccagcac cacctaaacc aacacctcaa ccaa

34

<210> 28

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A39 Epitope2
AS

<400> 28

tggttgaggt gttggttttag gtggtgctgg tcta

34

<210> 29

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A32.1 Epitope
S

<400> 29

aaaccggcac ctaaaccaac accaa

25

<210> 30

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A32.1 Epitope
AS

<400> 30

tggtgttggt ttaggtgccg gttta

25

<210> 31
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32.2 Epitope
S

<400> 31
aaaccagcgc ctaaaccagc accaa

25

<210> 32
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32.2 Epitope
AS

<400> 32
tgggtgctggt ttaggcgctg gttta

25

<210> 33
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32.3 Epitope
S

<400> 33
aaaccaacac cacctaaacc agcgcccta

28

<210> 34
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32.3 Epitope

AS

<400> 34
aggcgctggt ttaggtggtg ttggttta :

28

<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pSCREEN T7 10
S

<400> 35
ctgggtaagg agattattgc g

21

<210> 36
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32 Epitope
AS2

<400> 36
tggtgctggt ttaggcgctg g

21

<210> 37
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32 Epitope
S3

<400> 37
tctaaatcat catctaaacc aacatc

26

<210> 38
<211> 19
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pSCREEN T7 10
AS

<400> 38

cgcaagcttg tcgacggag

19

<210> 39

<211> 49

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12 Epitope S

<400> 39

aaacctcgac ctcagccaac gtcaaaacct cgacctcagc cgacgcaa

49

<210> 40

<211> 49

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12 Epitope
AS

<400> 40

tggcgtcggc tgaggtcgag gttttgacgt tggctgaggt cgaggttta

49

<210> 41

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12.2 Epitope
S

<400> 41

aaacctcgac ctcagccgac gccaa

25

<210> 42
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12.2 Epitope
AS

<400> 42
tggcgtcggc tgaggtcgag gttta

25

<210> 43
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12'2 Epitope
S

<400> 43
gaacctcgac ctcagccgac gtcaa

25

<210> 44
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12'2 Epitope
AS

<400> 44
tgacgtcggc tgaggtcgag gttca

25

<210> 45
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: A12'3 Epitope
S

<400> 45
gaacctcagc ctcagccggc gccaa

25

<210> 46
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A12'3 Epitope
AS

<400> 46
tggcgccggc tgaggctgag gttca

25

<210> 47
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A12 S

<400> 47
accaatatat ccgaaccagc

20

<210> 48
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A12 Mid AS

<400> 48
ttctgatgtt gactgagatg g

21

<210> 49
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A12 Mid AS2

<400> 49
ccgacgccag aacctcg

17

<210> 50
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lambda
forward

<400> 50
tggcgacgac tcctggagcc cg

22

<210> 51
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lambda
reverse

<400> 51
tgacaccaga ccaactggta atgg

24

<210> 52
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PspA S2

<400> 52
gcaagcttat gatatagaaa tttgtaac

28

<210> 53
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PspA AS

<400> 53

ccacataccg ttttcttggt tccagcc

27

<210> 54

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PspA S3

<400> 54

acaagtctag ccagctcgc

19

<210> 55

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PspA AS

<400> 55

ccacataccg ttttcttggt tccagcc

27

<210> 56

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii kexin fragment 777-787

<400> 56

Arg Pro Ala Pro Pro Lys Pro Thr Pro Gln Pro

1

5

10

<210> 57

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii kexin fragment 131-142

<400> 57

Ser Gly Asp Thr Gly Asn Val Asn Ser Gly Glu Lys
1 5 10

<210> 58

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii kexin fragment 856-872

<400> 58

Lys Pro Ala Pro Lys Pro Thr Pro Pro Lys Pro Ala Pro Lys Pro Ala
1 5 10 15

Pro

<210> 59

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii clone A12 fragment 62-77

<400> 59

Lys Pro Arg Pro Gln Pro Thr Ser Lys Pro Arg Pro Gln Pro Thr Pro
1 5 10 15

<210> 60

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii kexin fragment 856-863

<400> 60

Lys Pro Ala Pro Lys Pro Thr Pro
1 5

<210> 61

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii kexin fragment 865-872

<400> 61

Lys Pro Ala Pro Lys Pro Ala Pro
1 5

<210> 62

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii kexin fragment 860-868

<400> 62

Lys Pro Thr Pro Pro Lys Pro Ala Pro
1 5

<210> 63

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii clone A12 fragment 70-77

<400> 63

Lys Pro Arg Pro Gln Pro Thr Pro
1 5

<210> 64

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii clone A12 fragment 46-53

<400> 64

Glu Pro Arg Pro Gln Pro Thr Ser
1 5

<210> 65

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mouse P.
carinii clone A12 fragment 54-61

<400> 65

Glu Pro Gln Pro Gln Pro Ala Pro
1 5

<210> 66

<211> 1980

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: partial
nucleotide sequence of P. carinii cDNA clone A12

<400> 66

ctagatactc gtgctaattgt attttcttca tgttataaag aagatatgga tttttcagcc 60
aaattagatc ttctaaatag gataaaagat aagattgtag ttccaaaagg aaacacgagg 120
tattttgtag agttattgtg taaaagctat attgtcgccg aatgcagcgc cagtatttta 180
atgttcaaat cttatgctct tatggaagcc tgtcttcacc cagaaaggat ctgtagagaa 240
ttaaaaaatc atttttccga agaatctagg aaattagaaa ataaattaag gagtatttta 300
aaacccacat attatgaatg caaagatcta ggacaaaagt gcaactctgg attttatttt 360
gatggagata tagaagctca atgcaatcat ttcaaaaaaa gatgtcaaga taaacaagag 420
agactaaaat taattaatca tattgttgat tcatctgctc tttatctcgc aaatgaagta 480

```

caatgcagaa cttatttcga cagtttttgt ggtgcgaatg taaaacaaga attcaaaca 540
atatgcaaca aaggagctaa tggcatatgc cctgatataa tagatgattc taaagaacat 600
tgtgctcatt tgattaatca tttaacatct cttggaattt catcgtcttc tgcttcactt 660
ccattggact attgcgactc agcgattaat tactgtaatt ctctttcgaa gttttgcacg 720
gaatcaaaac gacagtgcga ttctgttatt tctttctgca ctagcgaatc aaaaaaaact 780
gatgaatatg gttcttttat tgaccaatat cccgcggctg cagcaaatgc aaccāaatgc 840
aaggtaactt tgaaagagtt atgccaagat tcaagcaaaa aagactctta ttcaacacta 900
tgtgcttata ataaagatgg ttataccgaa atatgtaaaa acttaagaaa tttcatagaa 960
aaagcatgcg agaatttgag aattcattta catacttatg atacaaactc actcaatacg 1020
aataaaggat ctgctcaaga tagatgcact tatataagaa atctttactt taaattttaa 1080
aatatatgtt tattggttga tcctttctat gacttatctc ctattatcac tcaagaatgt 1140
aaaaccaata tatccgaacc agcactgcct gataaggatc ctcaacctac atcttcacct 1200
cagccaaaac ctcggccaaag acctcgacct caacctcaac ctcatccaca tccaaaacct 1260
cagcctcagc cgacgccaga acctcagcct cagccggcgc cagaacctcg acctcagccg 1320
acgtcaaaac ctcgacctca gccaacgtca aaacctcgac ctccagccgac gccagaacct 1380
cgacctctgc cggtgccagg acctggacct ctgcccgtgc caggacctcg acctcaacct 1440
caacctcaac ctcaacctca gcctcaacct caacctcagc ctcaacctca acctcagcct 1500
cagcctcagc ctccagcctca gcctcaacct cagccgaagc ctcaaccacc atctcagtca 1560
acatcagaat cagcatcgca atccaaacca aaaccaacaa cacaacaaa accgtcaccg 1620
agaccacacc caaagccggt gccaaaacca tcatcgatag acacaggacc atcaaaatcg 1680
gattcaagct tcatttttac agtaacaaaa acaataacaa agatatcaga aacagaaaaa 1740
ccatctacaa aaccatctgt gaaaccaacc tctacaaaga caacatcaaa accatctaca 1800
aaaccatcta caaaaccatc tgtaaaacca gcctctacaa agaacaacatc agaatcagaa 1860
aaaccaacat tggaagaagt tccagaaaact aaaggggaatg gtgtaagagt aataggattt 1920
gaggggttac aattattatc aatgattgtt gcaataataa ttgggatatg gataatgtaa 1980

```

<210> 67

<211> 659

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: deduced
partial amino acid sequence of P. carinii cDNA
clone A12

<400> 67

```

Leu Asp Thr Arg Ala Asn Val Phe Ser Ser Cys Tyr Lys Glu Asp Met
 1             5             10             15

```

```

Asp Phe Ser Ala Lys Leu Asp Leu Leu Asn Arg Ile Lys Asp Lys Ile
      20             25             30

```

```

Val Val Pro Lys Gly Asn Thr Arg Tyr Phe Val Glu Leu Leu Cys Lys
    35             40             45

```

```

Ser Tyr Ile Val Ala Glu Cys Ser Ala Ser Asp Leu Met Phe Lys Ser

```

50		55		60
Tyr Ala Leu Met Glu Ala Cys Leu His Pro Glu Arg Ile Cys Arg Glu				
65		70		75 80
Leu Lys Asn His Phe Ser Glu Glu Ser Arg Lys Leu Glu Asn Lys Leu				
	85		90	95
Arg Ser Ile Leu Lys Pro Thr Tyr Tyr Glu Cys Lys Asp Leu Gly Gln				
	100		105	110
Lys Cys Asn Ser Gly Phe Tyr Phe Asp Gly Asp Ile Glu Ala Gln Cys				
	115		120	125
Asn His Phe Lys Lys Arg Cys Gln Asp Lys Gln Glu Arg Leu Lys Leu				
	130		135	140
Ile Asn His Ile Val Asp Ser Ser Ala Leu Tyr Leu Ala Asn Glu Val				
145		150		155 160
Gln Cys Arg Thr Tyr Phe Asp Ser Phe Cys Gly Ala Asn Val Lys Gln				
	165		170	175
Glu Phe Lys Gln Ile Cys Asn Lys Gly Ala Asn Gly Ile Cys Pro Asp				
	180		185	190
Ile Ile Asp Asp Ser Lys Glu His Cys Ala His Leu Ile Asn His Leu				
	195		200	205
Thr Ser Leu Gly Ile Ser Ser Ser Ser Ala Ser Leu Pro Leu Asp Tyr				
	210		215	220
Cys Asp Ser Ala Ile Asn Tyr Cys Asn Ser Leu Ser Lys Phe Cys Thr				
225		230		235 240
Glu Ser Lys Arg Gln Cys Asp Ser Val Ile Ser Phe Cys Thr Ser Glu				
	245		250	255
Ser Lys Lys Thr Asp Glu Tyr Gly Ser Phe Ile Asp Gln Tyr Pro Ala				
	260		265	270
Ala Ala Ala Asn Ala Thr Lys Cys Lys Val Thr Leu Lys Glu Leu Cys				
	275		280	285
Gln Asp Ser Ser Lys Lys Asp Ser Tyr Ser Thr Leu Cys Ala Tyr Asn				
	290		295	300
Lys Asp Gly Tyr Thr Glu Ile Cys Lys Asn Leu Arg Asn Phe Ile Glu				

305 310 315 320
 Lys Ala Cys Glu Asn Leu Arg Ile His Leu His Thr Tyr Asp Thr Asn
 325 330 335
 Ser Leu Asn Thr Asn Lys Gly Ser Ala Gln Asp Arg Cys Thr Tyr Ile
 340 345 350
 Arg Asn Leu Tyr Phe Lys Phe Lys Asn Ile Cys Leu Leu Val Asp Pro
 355 360 365
 Phe Tyr Asp Leu Ser Pro Ile Ile Thr Gln Glu Cys Lys Thr Asn Ile
 370 375 380
 Ser Glu Pro Ala Leu Pro Asp Lys Asp Pro Gln Pro Thr Ser Ser Pro
 385 390 395 400
 Gln Pro Lys Pro Arg Pro Arg Pro Arg Pro Gln Pro Gln Pro His Pro
 405 410 415
 His Pro Lys Pro Gln Pro Gln Pro Thr Pro Glu Pro Gln Pro Gln Pro
 420 425 430
 Ala Pro Glu Pro Arg Pro Gln Pro Thr Ser Lys Pro Arg Pro Gln Pro
 435 440 445
 Thr Ser Lys Pro Arg Pro Gln Pro Thr Pro Glu Pro Arg Pro Leu Pro
 450 455 460
 Val Pro Gly Pro Gly Pro Leu Pro Val Pro Gly Pro Arg Pro Gln Pro
 465 470 475 480
 Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro
 485 490 495
 Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro
 500 505 510
 Lys Pro Gln Pro Pro Ser Gln Ser Thr Ser Glu Ser Ala Ser Gln Ser
 515 520 525
 Lys Pro Lys Pro Thr Thr Gln Thr Lys Pro Ser Pro Arg Pro His Pro
 530 535 540
 Lys Pro Val Pro Lys Pro Ser Ser Ile Asp Thr Gly Pro Ser Lys Ser
 545 550 555 560
 Asp Ser Ser Phe Ile Phe Thr Val Thr Lys Thr Ile Thr Lys Ile Ser

565

570

575

Glu Thr Glu Lys Pro Ser Thr Lys Pro Ser Val Lys Pro Thr Ser Thr
 580 585 590

Lys Thr Thr Ser Lys Pro Ser Thr Lys Pro Ser Thr Lys Pro Ser Val
 595 600 605

Lys Pro Ala Ser Thr Lys Thr Thr Ser Glu Ser Glu Lys Pro Thr Leu
 610 615 620

Glu Glu Val Pro Glu Thr Lys Gly Asn Gly Val Arg Val Ile Gly Phe
 625 630 635 640

Glu Gly Leu Gln Leu Leu Ser Met Ile Val Ala Ile Ile Ile Gly Ile
 645 650 655

Trp Ile Met